

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

Investigation by the Department of
Telecommunications and Energy on its own
Motion into the Appropriate Pricing, based
upon Total Element Long-Run Incremental
Costs, for Unbundled Network Elements and
Combinations of Unbundled Network Elements,
and the Appropriate Avoided Cost Discount
for Verizon New England, Inc. d/b/a Verizon
Massachusetts' Resale Services in the
Commonwealth of Massachusetts

D.T.E. 01-20

REBUTTAL TESTIMONY OF CATHERINE E. PITTS

ON BEHALF OF AT&T AND WORLDCOM

(switching costs)

July 18, 2001

1 I. INTRODUCTION, QUALIFICATIONS AND PURPOSE OF TESTIMONY

2
3 Q. PLEASE STATE YOUR FULL NAME, PRESENT POSITION AND BUSINESS
4 ADDRESS.

5 A. My name is Catherine E. Pitts (formerly Petzinger). I am
6 an independent contractor working on behalf of AT&T. My
7 address is 810 Long Drive Road, Summerville, South
8 Carolina.

9 Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND
10 TELECOMMUNICATIONS INDUSTRY EXPERIENCE.

11 A. I received B.A. in political science and Master of Business
12 Administration degrees from Rutgers University. My
13 telecommunications industry experience includes over twelve
14 years of building cost models, and subsequently leading the
15 Telcordia (formerly Bellcore) group that developed
16 switching cost models, including the Switching Cost
17 Information System ("SCIS")¹. My experience also includes
18 extensive consultation on the use of telecommunications
19 cost models throughout the United States and abroad. I
20 joined Telcordia in 1984 and during my twelve year tenure,
21 was one of three individuals who designed the SCIS/IN² model
22 and implemented new incremental costing methodology into

¹ SCIS is a family of models that are used by VZ-MA as the foundation to its switch cost studies.

² SCIS/IN is the feature costing model in the SCIS family of models.

1 the program. I also was the lead subject matter expert on
2 feature costing in general, as well as a subject matter
3 expert on 1ESS, 1A ESS and 5ESS switches. In approximately
4 1994, when I was promoted to lead Telcordia's SCIS group of
5 approximately 20 people, I had overall responsibility for
6 the technical development, production, documentation,
7 customer care and cost study consultation for the SCIS
8 family of cost models.

9 In 1996, I joined AT&T as a switch cost expert,
10 primarily involved in analyzing incumbent telephone company
11 switching cost studies and testifying to my findings. In
12 May, 2001, I left AT&T to work as an independent contractor
13 performing switch cost study analyses and testifying in
14 switch-related cost proceedings.

15 **Q. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY IN REGARD TO LEC**
16 **SWITCH COST STUDIES?**

17 **A.** Yes. I have presented testimony in numerous states
18 regarding unbundled network switching cost studies,
19 including California, Nevada, Hawaii, Texas, Oklahoma,
20 Kansas, Florida, Georgia, Alabama, Tennessee, North
21 Carolina, and South Carolina. Of particular interest in
22 this proceeding, I have testified regarding Verizon's
23 switch cost studies in New York, Rhode Island, and
24 Maryland.

1 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

2 A. I have conducted a detailed analysis of VZ-MA's switching
3 cost claims and submit my findings in this rebuttal
4 testimony on behalf of AT&T and WorldCom. This rebuttal
5 testimony demonstrates that VZ-MA's claimed switch UNE
6 costs substantially exceed forward-looking economic costs
7 and should be rejected. Specifically, the testimony
8 demonstrates that VZ-MA's methodological approach to
9 developing its costs for switching violates long-run
10 forward-looking economic cost principles.

11 First, because VZ-MA's cost study does not assume the
12 purchase of new digital switches at new switch prices as
13 defined by VZ-MA's switch vendors, the study does not
14 satisfy basic TELRIC principles for modeling a
15 reconstructed local network. Instead of using the new
16 switch purchase discounts offered by its vendors, VZ-MA
17 relied solely on the "growth" discounts -- available for
18 adding-on capacity to existing switches -- thereby
19 substantially inflating its claimed switch costs.

20 Second, VZ-MA's proposed switch engineering and
21 installation factors are overstated and must be adjusted to
22 reflect the costs of an efficient company operating in a
23 competitive environment.

1 Third, VZ-MA has misallocated substantial costs to the
2 usage-related UNE elements, thereby overstating the UNE
3 minute of use elements.

4 There are numerous additional deficiencies in the
5 study including underutilization of trunks, understated
6 amounts of integrated digital loop carrier ports (IDLC),
7 unsubstantiated and questionable input data used in feature
8 cost development and Right-to-Use (RTU) costs.

9 This testimony also shows that the methodology VZ-MA
10 proposes for development of the switch portion of the
11 reciprocal compensation rates should be rejected. VZ-MA
12 arbitrarily excluded costs that it included in the UNE
13 usage elements from the reciprocal compensation costs.
14 There is no basis to consider switch costs in fundamentally
15 different ways depending upon whether the context is
16 switching UNEs or reciprocal compensation. Consequently,
17 the appropriate switch UNE rates -- identified below after
18 making the required adjustments to VZ-MA's cost study --
19 should serve as the switch component to develop the
20 reciprocal compensation rate.

21 The impacts of each correction in this testimony have
22 been quantified individually. Due to the excessive volume
23 of all the switch workpapers calculating the various input
24 corrections, the complete workpapers have been provided

1 only in electronic form as Exhibit CP-7. An index of
2 filenames of these electronic workpapers has been included
3 in Exhibit CP-6.

4 In addition, restated rates that include all of the
5 corrections discussed in this testimony along with the
6 relevant cost factor changes proposed in Mr. Baranowski's
7 testimony are attached in Exhibit CP-1. Exhibit CP-1,
8 Page 1, shows the AT&T/WorldCom restated switching rates,
9 restated to reflect the changes to Verizon's cost study
10 that are necessary for the reasons that I explain in this
11 rebuttal testimony. Page 2 of Exhibit CP-1 shows the
12 AT&T/WorldCom restated rates compared to the VZ-MA proposed
13 rates, with the percentage difference. Exhibit CP-5
14 provides paper copies of the workpapers associated with the
15 corrected or restated rates set forth in Exhibit CP-1.
16 (Electronic copies of these same workpapers are included
17 within Exhibit CP-7.)

18 **II. VZ-MA SWITCH UNE COST OVERVIEW**

19 **Q. PLEASE EXPLAIN HOW VZ-MA DEVELOPED ITS CLAIMED SWITCH UNE**
20 **COSTS.**

21 **A.** VZ-MA used the Telcordia SCIS models to develop claimed
22 port, port additives, and usage investments. Multiple
23 loadings were added for power, engineering, installation,

1 etc. and then annual cost factors were applied to convert
2 the investments to monthly costs and expenses were added to
3 develop the purported TELRIC cost. Then various overhead
4 loadings were added to calculate proposed prices. It is
5 important to note that since the cost study starting point
6 is switching investment, if VZ-MA's investment inputs are
7 wrong, as they clearly are, then VZ-MA's claimed costs and
8 ultimately its proposed switch UNE prices likewise will be
9 wrong, as they are by a wide margin.

10 **Q. DO THE SCIS RESULTS IN ELECTRONIC FORM MATCH THE RESULTS IN**
11 **VERIZON'S WORKPAPERS?**

12 A. No. Some SCIS results are inaccurately reflected in
13 Verizon's workpapers.

14 **Q. WHAT RESULTS DID NOT MATCH?**

15 A. The VZ-MA workpapers do not reflect the correct SCIS
16 results for the "getting started" cost category for end
17 office, tandem and TOPS (switches used for operator
18 services).³

³ See K. Salinger's letter to Mr. Beausejour on July 3, 2001. In my telephone conversations with Mr. Robert Beyer of Verizon, who was designated by Verizon to discuss and attempt to resolve this issue with me, Mr. Beyer confirmed that when he recalculated the electronic VZ-MA SCIS database without making any changes, the results dropped dramatically for the getting started cost. Mr. Beyer did not know why this was happening, but agreed that the new getting started cost that he calculated and that I calculated was the same result.

1 In addition, the Integrated Digital Loop Carrier
2 (IDLC) investment from SCIS was entered into the workpapers
3 incorrectly.⁴

4 **Q. ARE THESE ERRORS SIGNIFICANT WITH RESPECT TO THE COST OF**
5 **THE SWITCH UNES?**

6 A. Yes they are. The "getting started" cost errors affected
7 all the usage UNE rate elements for end office, tandem and
8 TOPS switches. When the correct "getting started" cost
9 results from the SCIS model are entered into VZ-MA's cost
10 study workpapers, but no other changes are made to the
11 workpapers as submitted by VZ-MA, the end office switch
12 usage rates decline by eight percent (8%) and tandem switch
13 rates decrease by three percent (3%).⁵

14 Correcting the IDLC error results in a 44% drop in the
15 IDLC port rates.

⁴ The outputs from the SCIS Line Termination Report for 5ESS in the electronic version of the SCIS model and backup provided by VZ-MA add up to \$44.36, not \$84.31 as incorrectly shown on VZ-MA Workpaper C-1, Section 39, Page 4, Line 35.1.

Additional errors exist, but are too complex to correct and explain, given their relatively small overall impact of 2% decline in switch rates. One such example is the inclusion of a combination local/tandem switches where the "getting started" cost is double counted in both the end office switch usage cost and the tandem usage cost. This is despite VZ-MA's denial that it has combination local/tandem switches in Massachusetts (see Verizon's response to ATT 4-50).

⁵ The results can be seen on the summary sheets of the following workbooks that contain the full analysis: "Recalculated MA-01-20 Switching MOU.xls", "Recalculated MA-01-20 Switching Elements Monthly.xls" and "Recalculated MA-01-20 RecipComp.xls." These worksheets have been provided electronically as Exhibit CP-7. These recalculations also include VZ-MA's corrections to the common trunk MOU provided in response to ATT-4-46.

1 **III. VZ-MA ERRED IN ITS USE OF GROWTH-ONLY SWITCH PRICES**

2
3 **Q. PLEASE EXPLAIN THE ROLE OF SWITCH PRICES AND SWITCH**
4 **DISCOUNTS IN VZ-MA'S COST STUDY**

5 A. The SCIS model has only the list prices of switch
6 manufacturers in its databases. In the real world,
7 telecommunications companies do not ever pay the list
8 price, but instead receive substantial discounts off the
9 list price from the switching vendors. This is true for
10 VZ-MA, just as for all other large telephone companies.
11 Thus, in order for SCIS to compute a net price, discount
12 inputs must be entered into the program.

13 **Q. PLEASE DEFINE "NEW" AND "GROWTH" SWITCH DISCOUNTS**

14 A. Switch manufacturers typically provide a larger discount
15 for purchasing a new switch compared to a lower discount
16 for purchasing add-on growth equipment to an existing
17 switch. VZ-MA calls this a two-tier discount structure.

18 **Q. WHY IS IT INCORRECT FOR VZ-MA TO USE GROWTH PRICES IN THE**
19 **COST STUDY?**

20 A. There are two reasons why growth-only prices are incorrect,
21 each of which I'd like to explain in more detail:

22 First, the use of growth only prices violates long-
23 run, forward-looking economic cost methodology. In fact,
24 VZ-MA's methodology violates all forms of cost methodology

1 because it inappropriately mixes and matches different, and
2 competing, methodologies in the same study.

3 Second, it is simply mathematically incorrect to use a
4 growth discount as an input to SCIS.

5 **Q. HOW DOES THE USE OF GROWTH-ONLY PRICES VIOLATE LONG-RUN**
6 **FORWARD-LOOKING COST METHODOLOGY**

7 A. A long-run study assumes that all costs are avoidable. The
8 reason for this assumption is to ensure that the total cost
9 of a switch is included, not just the small cost of adding
10 incremental traffic to an existing switch. VZ-MA, however,
11 does not take a long run view that assumes the entire
12 switch's forward-looking replacement cost must be
13 identified. Instead, VZ-MA assumes a short-run view,
14 declares that it will not purchase new digital switches and
15 therefore asserts that the only relevant cost is the price
16 of growth equipment being added to existing switches.

17 **Q. DOES THAT MEAN VZ-MA'S COST STUDY IS SHORT RUN?**

18 A. No. VZ-MA only uses this assumption to determine what
19 price level to use. VZ-MA then goes on to apply the higher
20 growth price to all of the switch equipment, not just the
21 add-on equipment.

22 **Q. IF VZ-MA'S COST STUDY IS NOT SHORT-RUN, WHAT IS IT?**

23 A. It is neither long-run nor short-run, it is simply
24 incorrect. It mixes a short-run approach to prices (which

1 are higher than long-run new switch prices) with the long-
2 run approach of including the total cost of the switch
3 (which is higher than the short-run incremental cost of
4 including just the growth equipment), thereby selectively
5 mixing methodologies that inappropriately inflate UNE
6 costs.

7 **Q. WHAT SHOULD VZ-MA DO WITH RESPECT TO SWITCH PRICES?**

8 A. VZ-MA should follow the long-run, forward-looking economic
9 methodology rules provided by the FCC that call for a
10 reconstructed network to serve reasonably foreseeable
11 demand.

12 **Q. WHAT ARE THE RELEVANT FCC RULES?**

13 A. TELRIC requires assuming the long-run so that all
14 investments become avoidable - thus leading to the FCC rule
15 that a new network be built using the existing wire center
16 locations. In its First Local Competition Order released
17 in August 1996, the FCC stated (in paragraph 672):

18 "Having concluded in Section II.D., above, that
19 we have the requisite legal authority and that we
20 should establish national pricing rules, we
21 conclude here that prices for interconnection and
22 unbundled elements pursuant to sections
23 251(C)(2), 251(C)(3), and 252(d)(1), should be
24 set at forward-looking long-run economic cost."
25

26 The Order defines long-run in paragraph 677:

27 "The term 'long run' in the context of 'long run
28 incremental cost' refers to a period long enough

1 so that all of a firm's costs become variable or
2 avoidable."

3
4 and in paragraph 690:

5 "The increment that forms the basis for a TELRIC
6 study shall be the entire quantity of the network
7 element provided."

8
9 and in paragraph 685:

10 "We, therefore, conclude that the forward-looking
11 pricing methodology for interconnection and
12 unbundled network elements should be based on
13 costs that assume that wire centers will be
14 placed at the incumbent LEC's current wire center
15 locations, but that the reconstructed local
16 network will employ the most efficient technology
17 for reasonably foreseeable capacity
18 requirements."

19
20 VZ-MA attempts to confuse these straightforward principles
21 by talking about not replacing digital switches and that
22 they would be only "growing" these switches at a higher
23 cost than purchasing new switches. VZ-MA claims it is
24 using forward-looking assumptions, but there is a glaring
25 omission of references to long run.⁶ This is a direct
26 violation of the FCC's rules requiring that a reconstructed
27 network be costed to serve the entire quantity of the
28 network element provided. VZ-MA also talks about actual,
29 incremental costs - but again, the increment that must be
30 studied according to the FCC's rules is the entire switch
31 demand, not just the next three years' demand.

⁶ See Panel Testimony, page 143.

1 It is also important to note that the assumption of
2 developing a reconstructed, forward-looking network is a
3 convention for performing a long-run economic cost study -
4 and is not remotely related to the highly theatrical VZ-MA
5 diatribe about the "life and death" worldwide
6 recall/replacement of Firestone tires. The FCC's rules
7 don't require a break-neck replacement of switches as
8 though the lives of all end-user customers hang in the
9 balance, and its economic cost convention of assuming a
10 reconstructed network should not be taken to such an
11 extreme, as suggested by Verizon. Dramatics aside, it
12 simply means that the cost of a total new switch should be
13 the starting point for developing switch costs.

14 Moreover, VZ-MA's inflammatory Firestone argument, if
15 taken to its "logical" conclusion, would apply equally to
16 the building out of its entire outside plant network, as
17 well. Were the same extreme logic applied to outside plant,
18 then cost of copper, fiber, poles, installer's labor rates,
19 etc. would all be extraordinary, and would not reflect
20 VZ-MA's forward-looking costs of doing business, nor would
21 they be representative of costs of any carrier in a
22 competitive marketplace. Switching must be afforded the
23 same replacement network economic costing logic as is used
24 elsewhere in the network cost studies.

1 Q. WHAT ECONOMIC COST METHODOLOGY IS VZ-MA USING FOR
2 SWITCHING?

3 A. VZ-MA is assuming the discounted price structure only of
4 incrementally growing its switches, not the discounted
5 price structure for a newly constructed switch that serves
6 the entire demand.

7 It warrants emphasis that earlier this year, the
8 United States District Court for the District of Delaware
9 explicitly rejected Bell Atlantic's no new digital switch
10 argument and its attempt to evade use of the aggressive new
11 switch purchase discounts -- as contrary to TELRIC.⁷

12 Also, as noted by the Delaware federal court, VZ's
13 witness Dr. Taylor plainly recognizes both the FCC's "long
14 run" and "reconstructed local network" requirements for
15 developing VZ's forward-looking economic costs for
16 switching. As to the FCC's long run requirement, the Court
17 cited Dr. Taylor's testimony that the FCC's Local
18 Competition Order

19 "says rip every switch out. All of them...every
20 switch in the network, rip them out. Leave the
21 ...wire center location where they [sic] are.
22 And build the network that you would build today
23 to serve the demand."⁸
24

⁷ Bell Atlantic-Delaware, Inc. v. McMahon, 80 F. Supp. 2d 218, 236-239 (D.Del. 2000).

⁸ 80 F. Supp. 2d at 238.

1 The Court also cited Dr. Taylor's testimony in which he
2 characterized the Local Competition Order's reconstructed
3 local network requirement as follows:

4 "I take that to mean that all elements of the
5 local network, including the switches, including
6 the building that surrounds the switch...all of
7 those elements get rebuilt as if the neutron
8 bomb had flattened them."⁹
9

10 Against this background, VZ-MA's current insistence on
11 growth-only switch prices is indefensible.

12 **Q. HOW SHOULD VZ-MA USE THE RULES TO DETERMINE THE CORRECT**
13 **SWITCH PRICE?**

14 A. VZ-MA should use the discount that most closely
15 approximates its forward-looking cost of a new switch so
16 that a newly constructed network can be built to serve all
17 reasonably forecasted demand.

18 **Q. WHAT NEW SWITCH PRICE SHOULD VERIZON HAVE USED?**

19 A. The cost study should be long-run, and in an ideal world,
20 we could determine the cost of replacing digital switches
21 with the next technology, if, in fact, VZ-MA does not
22 purchase any new digital switches. We agree that, at some
23 future date, packet-based switches will probably be the
24 primary switching vehicle in the network. As the timing is
25 uncertain, it would be premature to assume a network using
26 packet technology for voice. We can be certain, however,

1 that efficient companies will add packet switches only when
2 they are cheaper on a unit basis than purchasing digital
3 switches. A rational company would not rip out fully
4 functioning switch equipment unless it could replace it
5 with a more efficient technology. Therefore, the cost of a
6 new digital switch is a conservatively high estimate for
7 the next generation of switch technology and should be used
8 in the cost study.

9 **Q. HOW CAN A NEW SWITCH PRICE BE DETERMINED?**

10 A. There are two sources for identifying the cost of a new
11 switch: Competitive bids and switch manufacturer
12 contracts. I have reviewed the competitive bids and switch
13 manufacturers' contracts provided by Verizon in response to
14 discovery requests.

15 VZ-MA provided examples of competitive bids¹⁰ for
16 recently purchased new switches that illustrate that much
17 higher discounts can be obtained from the switch vendors
18 than what is contained in the contracts¹¹ VZ has with its
19 vendors. In essence, the vendor contracts are the maximum
20 price that Verizon could expect to pay.

⁹ 80 F. Supp. 2d at 238.

¹⁰ Verizon Response to ATT-2-30. Relevant pages attached as Proprietary Exhibit CP-2. The competitive bids are not for Massachusetts switch purchases, but are relevant benchmarks because Verizon purchases switches on an entity-wide basis, not just for Massachusetts and so the prices in other jurisdictions are relevant here.

1 Q. DOES VZ-MA RECEIVE NEW AND GROWTH SWITCH PRICE DISCOUNTS?

2 A. Yes. VZ-MA claims that the "current contract with Lucent
3 no longer has a two-tier discount structure." While this
4 statement is true, it is misleading. Lucent has maintained
5 a new switch discount vs. growth discount structure, but
6 has greatly expanded the growth discount structure into
7 multiple discounts based on the type of equipment being
8 purchased as described in VZ-MA panel testimony, page 139.¹²
9 VZ-MA's assertion that Lucent has "replaced it [the two-
10 tier discount structure] with a one-tier discount
11 structure" is also misleading, at best.¹³

12 Q. WHAT CONTRACT CONTAINS THE NEW SWITCH PURCHASE DISCOUNT?

13 A. As VZ-MA admitted, the so-called Megabid contracts are
14 still in effect until the year 2003.¹⁴ The contract with
15 Lucent permits VZ to purchase new switches under this
16 contract at the discount price for new switches.

17 Q. PLEASE EXPLAIN WHY YOU BELIEVE THE EXISTING MEGABID
18 CONTRACT IS STILL VALID FOR NEW SWITCH PURCHASES.

19 A. As VZ-MA stated in its Panel Testimony on pages 141 and
20 142, multiple amendments and small new contracts were

¹¹ Response to ATT 3-1, relevant pages attached as Proprietary Exhibit CP-3.

¹² And as documented in the contracts that were provided to AT&T for review by Verizon in response to ATT-3-1.

¹³ VZ-MA Panel Testimony, page 141.

¹⁴ VZ-MA Panel Testimony, page 142

1 signed; however, none of these alter the ability of VZ-MA
2 to purchase a new switch under the Megabid contract that is
3 effective until 2003. The amendments and new contracts
4 apply to developing multiple discounts for various types of
5 growth equipment and special software purchases. The
6 amended growth discounts replace the original growth
7 discounts in the Megabid contract and contain instructions
8 to place the amended growth discounts *below* the new switch
9 discounts of the original Megabid contract, thereby leaving
10 the original new switch discount unchanged.¹⁵

11 **Q. VZ-MA CLAIMS THAT THE MEGABID CONTRACT APPLIED TO ANALOG**
12 **SWITCH REPLACEMENTS AND ONLY 3.46 MILLION LINES. IS THIS**
13 **CORRECT AND IS IT RELEVANT?**

14 **A.** It is correct to a point. The Megabid contract was
15 negotiated with a commitment by Verizon to purchase a
16 minimum number of lines, but there is no maximum and the
17 contract is still in effect and represents the maximum
18 price Verizon would pay to purchase a new switch.

19 The number of lines in the embedded network purchased
20 at a particular price, however, is not relevant in a
21 forward-looking long-run cost study, even if the contract
22 previous to 1993 provided even more aggressive pricing.

23 The crucial issue here is that the Megabid contract

¹⁵ See pITTS Proprietary Exhibit CP-3 for relevant pages of the contracts.

1 provides for the lowest new switch discount that VZ-MA
2 could expect to receive when purchasing a new switch today,
3 and thus represents a conservative long-run, forward
4 looking price for switching.

5 **Q. WHERE DID YOU OBTAIN THE DISCOUNTS USED IN YOUR RESTATEMENT**
6 **OF VZ-MA'S RATES?**

7 A. Although we certainly are justified in using the largest
8 discounts that VZ received in competitive bids, we
9 conservatively chose to use the contract discounts as the
10 basis for the restatement.

11 **Q. WHAT DISCOUNTS DID YOU CHANGE?**

12 A. After comparing the contract discounts for new switches, it
13 was clear that only Lucent's discounts needed to be
14 changed, and that the discounts used for purchases from
15 Nortel need not be restated.

16 **Q. WHY WOULD DISCOUNTS FROM ONLY ONE MANUFACTURER HAVE TO BE**
17 **CHANGED?**

18 A. VZ-MA's cost study illustrates, but is not the reason for,
19 why only Lucent's discount input needed to be adjusted.
20 There is a massive disparity between the two vendors'
21 average cost per line (total switch investment divided by
22 total lines served) in VZ-MA's cost study. Nortel DMS is
23 \$82 per line while the Lucent 5ESS is \$167 per line - more

1 than twice as high.¹⁶ This difference is not rational and
2 does not accurately reflect the pricing that exists in the
3 highly competitive switch vendor market. The two switch
4 vendors are essentially identical with respect to
5 capabilities and functions in the switch products and
6 compete primarily on price.

7 **Q. DOES THE DISPARITY IN COST BETWEEN THE VENDORS MAKE SENSE**
8 **GIVEN THAT VZ-MA ARGUES THAT IT USES A MIX OF TWO SWITCH**
9 **VENDOR TECHNOLOGIES TO ENSURE A DEGREE OF STRATEGIC**
10 **DIVERSITY.**

11 **A.** No. VZ-MA may define strategic diversity to exclude switch
12 prices, but that would be nonsensical. A fiscally
13 responsible company would ensure multiple suppliers, but
14 not at a massive cost differential.

15 When the discount for Lucent switches was revised to
16 correspond with the contract new switch discount, the
17 average price per line is \$82.¹⁷

¹⁶ These average prices per line are based on the VZ-MA study corrected for the errors described above. Before the corrections, VZ-MA's study showed \$88 and \$172 per line

¹⁷ This analysis can be seen in the electronic workpapers filed with this rebuttal testimony as Exhibit CP-7, filename "Recalculated MA-01-20 Switching Elements MOU.xls" sheet labeled 'WP S4 Total EO Material' and "Recalculated MA-01-20 RecipComp.xls".

1 Q. BUT IF YOU CHANGED ONE SWITCH MANUFACTURER'S DISCOUNT TO
2 REFLECT NEW SWITCHES AND YOU DIDN'T CHANGE THE OTHER
3 MANUFACTURER'S DISCOUNT THAT VZ-MA CHARACTERIZES AS THE
4 GROWTH ONLY DISCOUNT, AREN'T YOU INAPPROPRIATELY MIXING NEW
5 AND GROWTH?

6 A. No. We also reviewed Nortel's contract to determine its
7 new switch discount and agree with VZ-MA that "...the
8 current Nortel contract new or "replacement" discount is
9 very close to its growth discounts."¹⁸

10 Q. HOW CAN SUCH A DISPARITY BETWEEN THE SWITCH MANUFACTURERS
11 DISCOUNTS AND AVERAGE PRICES PER LINE EXIST?

12 These differences exist only within the realm of VZ-MA's
13 cost study and they are attributable to the flawed
14 methodology VZ-MA used to develop its growth discount
15 inputs.

16 VZ-MA studied actual equipment purchases for one year
17 and compared the list price with the net price to determine
18 its growth discount inputs.¹⁹ The range of discounts is
19 similar for the two vendors, but apparently the mix of
20 types of equipment purchases must have been dramatically
21 different between the vendors in order for the huge

¹⁸ VZ-MA Panel Testimony, page 140.

¹⁹ See Verizon's Workpaper C-P: Switch Discount Development,
Exhibit Part C-P2, page 1.

1 difference in average growth discounts to occur.²⁰ VZ
2 apparently did not ensure that its discount development
3 analysis studied similar purchases between the vendors,
4 necessary to avoid skewing the results. Nor is there is
5 any reason to expect that the limited purchases included in
6 VZ's discount development analysis are representative at
7 all of what an "average" growth discount would be in the
8 future.

9 **Q. CAN SCIS BE USED TO PRODUCE A CORRECT SWITCH PRICE USING**
10 **ONLY GROWTH DISCOUNTS?**

11 A. No. SCIS is a "static" model and is designed to estimate
12 the price of a new switch. It was not designed to
13 dynamically model a switch that grows over time.²¹ VZ-MA's
14 input of only growth discounts is a serious misuse of the
15 SCIS model. A significant portion of the SCIS-produced
16 price for a switch is for the "getting started" equipment,

²⁰ Verizon-MA couldn't even determine whether the purchases were associated with new, growth or upgrade equipment. See Verizon's response to ATT 4-37. VA-MA did admit that the purchases did not include every component required to build a new switch (see Verizon's response to ATT 4-40 and ATT 4-41).

²¹ Performing a dynamic cost study is extremely difficult, requires extensive demand analysis, and has not been used, to my knowledge, in the telephone industry for determining the costs of retail services or wholesale elements. Telephone cost studies used as the basis of rate-setting, to my knowledge, have always studied the costs of the network as a "snapshot" and SCIS was designed and developed, along with all other cost models of which I am aware, to perform just such a "static" analysis.

1 or first cost of the switch.²² This equipment is only
2 purchased with the initial installation and would receive a
3 new switch discount. In addition, all lines and trunks
4 purchased at the initial installation of a new switch (and
5 usually lines and trunks purchased for a number of years
6 afterward) would also receive the new switch discount.²³

7 When VZ-MA improperly uses the growth switch discount
8 in running SCIS, SCIS takes that discount and applies it
9 uniformly across all switch components, including the
10 "getting started" equipment and all the lines and trunks
11 purchased as part of a new switch that would not be
12 purchased at the higher growth discount. This results in a
13 serious overstatement of the total switch investment. It
14 is mathematically and conceptually incorrect to enter only
15 a "growth" discount into SCIS when the program will
16 ultimately apply that lower growth discount to large
17 amounts of equipment that is purchased only as part of a
18 new switch purchase and thus in reality would receive the
19 higher new switch discount.

²² In VZ-MA's corrected cost study, the "getting started" cost is 25% of the total investment. See Recalculated Workpaper C-2, Section 4, Page 1 of 3. Cf. footnote 5 and the accompanying text, above.

²³ Note that most digital switches were installed to replace an analog switch that was already serving the wire center. When a digital switch was purchased under the new switch Megabid agreement, all of the replacement lines and trunks purchased as part of the new digital switch would receive the new switch discount.

1 **IV. TRUNK UNDERUTILIZATION INPUTS CAUSE INFLATED COSTS IN VZ-**
2 **MA'S COST STUDY**

3
4 **Q. WHAT ARE THE TRUNK UTILIZATIONS IN VZ-MA COST STUDY?**

5 A. VZ-MA's inputs to SCIS average just over 15 busy hour
6 CCS/trunk²⁴ per end office trunk, which equates to 25.63
7 minutes of use in the busy hour of the switch and less than
8 18 CCS/trunk per tandem trunk, which equates to
9 approximately 30 minutes of use in the busy hour.²⁵ A
10 trunk's theoretical capacity is 36 CCS, but this is not
11 realistically achievable. A conservatively realistic
12 average trunk utilization would be at least 20 busy hour
13 CCS/trunk or almost 33 minutes of use in the busy hour of
14 the switch.²⁶ By assuming trunk utilization that is only 80
15 percent of what it should be in an efficient, forward-
16 looking network, VZ-MA has assumed substantial
17 underutilization of trunk port capacity.

18 **Q. HOW DOES THIS UNDERUTILIZATION AFFECT THE COSTS IN THE**
19 **VZ-MA STUDY?**

20 A. The common end office and tandem trunk port MOU rate
21 element costs are inflated by the understated utilization.

²⁴ CCS is centum call seconds and is a standard measure for traffic engineering. One CCS is 100 seconds, or 1.66 minutes, of use.

²⁵ See Verizon's WP Part C-2, Section 4, Page 2 of 3.

²⁶ Using an Erlang B lookup table (used by trunk engineers to determine appropriate trunk sizing based on traffic demands) for a 50-member trunk group with .1% blocking, the utilization would be 22.3 CCS/trunk.

1 Q. SHOULD VZ-MA'S INPUTS BE BASED ON ACTUAL USAGE OF ITS
2 EMBEDDED TRUNK NETWORK?

3 A. No - not for a forward-looking cost study. The inputs
4 should reflect what an efficient carrier in a competitive
5 market could achieve. It would be expected that an
6 efficient carrier would maximize trunk utilizations.

7 Q. HOW IS THIS UNDERUTILIZATION ERROR COMPOUNDED THROUGHOUT
8 THE COST STUDY?

9 A. Not only do the usage inputs to SCIS reflect severe
10 underutilization, but then VZ-MA also enters a 95% fill
11 factor into SCIS that divides the cost of a trunk by 95%,
12 thereby increasing the cost and lowering the effective
13 utilization.²⁷ VZ-MA then compounds the problem by applying
14 a second utilization adjustment of 94.28% separately into
15 the cost study spreadsheets to further reduce the
16 utilization and further inflate the trunk port and trunk
17 minute of use elements of its proposed switching rates.²⁸

18 Q. WHAT ADJUSTMENT DO YOU RECOMMEND IN THE RESTATED RATES?

19 A. The trunk CCS inputs on WP C-2, Section 4, Page 2 should be
20 increased to 20 CCS per trunk.

²⁷ See Verizon's WP Part C-1, Section 38 Page 4 of 4.

²⁸ See Verizon's WP Part C-1, Section 5, Page 1, Line 2. This applies also to tandem trunks as well.

1 Q. WHAT IMPACT DOES THIS ADJUSTMENT HAVE ON THE COSTS?

2 A. Increasing the average trunk utilization to a conservative
3 20 CCS per trunk for end office and tandem trunks decreases
4 the common trunk MOU rate element by 20% and the tandem
5 trunk MOU by 11%.²⁹

6 Q. VZ-MA ASSUMES TOO FEW LINES ON INTEGRATED DIGITAL LOOP
7 CARRIER, THEREBY INFLATING COSTS. HOW MUCH IDLC HAS VZ-MA
8 ASSUMED IN ITS SWITCH STUDY?

9 A. VZ-MA has assumed 25% of the lines are on integrated
10 digital loop carrier.

11 Q. SHOULD VZ-MA ASSUME ALL DIGITAL LOOP CARRIER IS INTEGRATED?

12 A. Yes. The only UNE line-side switch ports that will be
13 purchased by competitive carriers will be those associated
14 with UNE-P.³⁰ The switch ports being costed, therefore,
15 would be either copper analog ports or fiber fed GR303-
16 compliant integrated digital loop carrier. Fiber fed loops
17 that VZ-MA asserts would have to be demultiplexed down to
18 analog ports, making them 'universal' DLC is inappropriate,
19 as explained by Mr. Baranowski in his rebuttal testimony.

²⁹ This analysis can be seen in the electronic workpapers filed as Exhibit CP-7, filename "Trunk MOU Recalculated MA-01-20 Switching Elements MOU.xls" and "Trunk MOU Recalculated MA-01-20 RecipComp.xls".

³⁰ I can think of no instance where a carrier would have its own loop, but require the incumbent's switch.

1 **Q. HOW MUCH IDLC SHOULD VZ-MA USE IN ITS STUDY?**

2 A. In a reconstructed network with the efficient deployment of
3 fiber-fed feeder with integrated digital loop carrier in
4 Massachusetts, there should be 49.2% lines on IDLC as
5 demonstrated by Dr. Mercer in his direct testimony. The
6 embedded percentage of IDLC in VZ-MA's network is
7 irrelevant in a forward-looking cost study. The correct
8 amount of IDLC should be increased from 25% to 49.2%.

9 **Q. HOW DOES THE PERCENTAGE OF IDLC AFFECT THE SWITCH COSTS?**

10 A. Compared to the improper assumption of inefficient UDLC,
11 IDLC reduces not only the IDLC ports' cost, but the blended
12 UNE-P port rate as well because the blended UNE-P port is a
13 meld of analog and IDLC port costs. The net effect of
14 assuming 49.2 percent IDLC rather than the improperly low
15 25% assumed by Verizon results in a 33% reduction in the
16 cost of IDLC port rates, and a 28% reduction in the melded
17 UNE-P port rate.³¹ The restated rates that attach to this
18 rebuttal testimony include this adjustment.

³¹ This analysis can be seen in electronic workpapers filed as Exhibit CP-7, filename "IDLC at 49.2% effect on melded port rate.xls".

1 V. FEATURE PORT ADDITIVES ARE INCORRECT

2
3 Q. WHAT TYPES OF EQUIPMENT ARE INCLUDED IN VZ-MA'S CLAIMED
4 FEATURE PORT ADDITIVES?

5 A. According to VZ-MA, these claimed costs represent unique
6 hardware that must be purchased in order to provision
7 features.

8 Q. HOW DOES VZ-MA COMPUTE THE CLAIMED COST OF THIS EQUIPMENT?

9 A. VZ-MA says it used the feature module (SCIS/IN) of the SCIS
10 program to calculate most of these costs.

11 Q. HOW DOES THE DISCOUNT INPUT DISCUSSION ABOVE AFFECT THE
12 FEATURE MODULE OF SCIS?

13 A. The SCIS/IN program also requires discount inputs to be
14 entered so that net prices for feature-related hardware can
15 be correctly calculated. VZ-MA's claimed feature
16 investments, therefore, have been similarly overstated due
17 to incorrect discount inputs.

18 Q. WHAT CORRECTIONS NEED TO BE MADE TO VZ-MA'S FEATURE PORT
19 ADDITIVES?

20 A. The investments for feature port additives³² should be
21 reduced as shown in the restated rates in Exhibit CP-1.
22 The restated rates for feature port additives include the

³² Found in Verizon's workpapers, Section 39 of Part C: Switching.

1 overall investment decline of 37%³³, the reduction
2 associated with the EF&I factor, and other corrections to
3 cost factors proposed by Mr. Baranowski.

4 **Q. ONCE THE DISCOUNT INPUTS ARE CORRECTED, ARE THE FEATURE**
5 **COSTS RIGHT?**

6 A. No. VZ-MA did not provide any substantiation for any of
7 its inputs used to calculate the feature port additives.
8 SCIS/IN requires inputs reflecting multiple traffic
9 estimates of feature usage for each feature. The most
10 common input requires estimating how often, on average, a
11 feature will be used in the busy hour by each customer that
12 has the feature. Derivation of these inputs is
13 particularly difficult. Typically, changing an input for
14 the number of times a feature will be used will linearly
15 impact the calculated investment. For example, changing
16 the input regarding the number of times a customer uses a
17 three-way calling in the busy hour from .25 to .5 will
18 double the feature cost.

³³ The feature port additives receive a 37% decrease associated with the overall decline in switch investment [$1 - (\$82/\$131) = 63\%$] as well as the other adjustments proposed in this Testimony and reflected in the Restated Rates. This is an understatement because the overall switch decline includes the costs for main distributing frame termination costs that do not change with the discount levels. The features do not include main distributing frames, and therefore the decline applicable to features would actually be higher.

1 When asked to provide documentation or even basic
2 reasoning for feature inputs, VZ-MA could not comply. Its
3 non-responsive answers include:

4 "The inputs for studies in C-1, where the source has
5 been identified as Product Management, are based upon the
6 opinion of the respective product manager. There is no
7 additional supporting documentation available."³⁴
8

9 "The inputs for features are based on the opinion of
10 the respective product manager. There is no additional
11 supporting documentation."³⁵
12

13 "There was no specific usage study performed. The
14 usage inputs are based on the opinion of the product
15 manager. There is no additional supporting
16 documentation."³⁶
17

18 Even though AT&T requested explanations, and not just
19 supporting documentation, apparently no one at VZ can
20 explain how these inputs were derived, even conceptually.

21 **Q. HOW DO YOU PROPOSE TO CORRECT THESE ERRORS?**

22 A. VZ-MA has not met its burden of proof to document and
23 support its costs for features.³⁷ It would be appropriate
24 for the port additives to be eliminated entirely. If,
25 however, the Department declines to hold VZ-MA accountable

³⁴ Verizon's Response to ATT 4-1. This question also asked for documents and explanations. The answer did not address "explanations" and VZ-MA did not provide such a response at the time of this testimony preparation.

³⁵ Verizon's Response to ATT 12-15. Note that the question asked for documentation and an explanation of the rationale. At the preparation time of this testimony, AT&T did not receive any response to the portion of the question that asked for a "rationale" for developing the input.

³⁶ See Verizon's response to ATT 12-16.

1 for sustaining its burden of proof for the costs VZ-MA
2 proposes, then the port additives in the restated rates
3 should be adopted.

4 **VI. VZ-MA MIS-ASSIGNED COSTS TO THE USAGE ELEMENTS**

5 **Q. HAS VZ-MA ASSIGNED THE SCIS RESULTS TO THE CORRECT TRAFFIC**
6 **SENSITIVE AND NON-TRAFFIC SENSITIVE ELEMENTS?**

7 A. No. The first cost of a switch is not traffic sensitive,
8 nor are switch RTU fees. Digital switches are port-
9 limited, not call or minute-of-use capacity constrained.³⁸
10 This is true for VZ-MA, as can be seen in VZ-MA's own
11 studies showing the average processor utilizations are
12 infinitesimally small compared to the available call
13 processing capacities.³⁹ This level of tiny utilization is
14 not atypical for the current generation of digital switches
15 - they are designed this way and take advantage of the huge
16 economies in computer chip technologies to ensure that a
17 switch will not exhaust on processing or memory power. It

³⁷ Based on the limited information received to date, AT&T/WorldCom cannot correct the inputs; however, should additional data be made available by VZ-MA, supplemental testimony may be required regarding feature inputs.

³⁸ See the following from major RBOC's: VZ-NY: J. Gansert's testimony, New York Case 95-C-0657, 94-C-0095, 91-C-1174, page 24. SWBT: Transcript (pg 3556) of Costing Pricing Issues SWBT Arbitration PUC Docket 16226, 11/3/96 cross of Raley. Ameritech: Direct Testimony of William Palmer, ICC Docket 96-0486, Ameritech-Illinois Exhibit 3.3. Pacific Bell: R. Scholl February, 1997, deposition in case R.93-04-993 and I.93-04-002.

³⁹ See Proprietary Exhibit CP-4, filed herewith, which displays the average switch processor utilizations contained in the SCIS model as run by VZ-MA.

1 is safe to say that these switches will never exhaust call
2 processing capacities in their lifetimes. The appropriate
3 cost driver for today's digital switches is ports, not
4 minutes of use.

5 **Q. OK, SO THE SWITCHES ARE PORT LIMITED. WHAT DOES THIS MEAN**
6 **FOR VZ-MA'S COST STUDY?**

7 A. There are large amounts of processor, memory and other
8 "getting started" costs that do not vary with respect to
9 lines or trunks. The line and traffic inputs to SCIS can
10 be modified by an order of magnitude, but the "getting
11 started" cost output will not change even one penny.⁴⁰ VZ-
12 MA has allocated these substantial costs (25% of the total
13 investment) to the minute of use element and that is
14 incorrect.

15 The only time the "getting started" cost will be
16 replicated is when a second switch must be installed
17 because the port capacity was reached. Therefore, the cost
18 driver is ports. The "getting started" costs (and other
19 non-usage sensitive costs) should be assigned to the ports,
20 not the minute of use.

⁴⁰ This can be seen by viewing the office by office results in VZ-MA SCIS database. The "getting started" cost does not change, except when remote switches are added to a host because the remote's "getting started" costs are added to the host's "getting started" cost.

1 Just as it is imperative to ensure that non-recurring
2 costs be recovered via non-recurring cost elements, it is
3 critical that non-usage sensitive costs not be recovered
4 via usage sensitive elements.

5 **Q. HOW DO YOU PROPOSE THE COST ASSIGNMENTS BE MADE WITH**
6 **RESPECT TO THE USAGE SENSITIVE AND NON-USAGE SENSITIVE RATE**
7 **ELEMENTS?**

8 A. VZ-MA has included the SCIS outputs by detailed cost
9 category on WP C-2, Section 4, Page 1. The correct
10 assignments of the individual cost categories to the
11 appropriate element can be easily performed.

12 Some categories are obvious - line termination costs,
13 BRI and PRI costs (for ISDN line and trunks, respectively),
14 and other ISDN-related port costs are unequivocally
15 assigned to ports. The investments sensitive to CCS
16 engineering for lines and trunks, as well as the packet per
17 second (PPS) equipment for data and signaling on ISDN lines
18 should also be assigned to usage sensitive minute-of-use
19 elements.

20 However, there is a third category of equipment that
21 is not obvious and a thorough engineering and economic cost
22 analysis must be made. An engineering analysis is
23 necessary to understand the functions and capacities of the
24 equipment whose cost is being assigned; and an economic

1 cost analysis is necessary to ensure conformance to long-
2 run, forward-looking cost methodology that assigns costs
3 based on economic cost causation.

4 One major portion of this third category is the
5 "getting started" cost and the second portion is the 5ESS
6 "EPHC"⁴¹ costs.

7 As explained above, the "getting started" cost
8 category should be assigned to ports. In addition, the
9 following dedicated port investments should be assigned to
10 ports: Line Termination, BRI-U Card (ISDN), PRI D and B
11 Channel, Add'l BRI PPB Channel, Add'l D Channel Termination
12 and Add'l XAT Channel.⁴²

13 **Q. WHAT ARE THE "EPHC" CATEGORIES AND WHERE DO THEY BELONG?**

14 A. There are two EPHC categories (Line 2 in non-ISDN
15 investments and Line 10 in the ISDN investments) that also
16 should be assigned to ports. EPHC is an output category
17 that captures the common equipment in the switch module,
18 which is the primary building block component of the 5ESS
19 switch, which uses a "distributed" architecture. This
20 common equipment's maximum port capacity is reached before

⁴¹ EPHC is Equivalent POTS Half Calls.

⁴² PRI are ISDN trunks, PPB and XAT are ISDN data ports.

1 its call processing capacity.⁴³ Therefore, the cost driver
2 is ports and the EPHC costs should be assigned to the
3 ports.

4 **Q. WHAT SHOULD BE ASSIGNED TO THE USAGE CATEGORIES?**

5 A. The Line CCS categories (ISDN and non-ISDN), the D Channel
6 Access PPS, PPB Channel Access PPS, Inter-Switch PPS and
7 XAT PPS should all be assigned to the usage category, as
8 well as the SS7 Link costs because this equipment is
9 engineered and purchased based on usage.

10 The trunk costs are separated and assigned to the
11 common trunk MOU, which is also usage sensitive.⁴⁴

12 **VII. RIGHT TO USE FEES ARE UNSUBSTANTIATED AND SHOULD BE**
13 **REJECTED, AND THE RIGHT TO USE FEES ARE MIS-ASSIGNED TO THE**
14 **USAGE SENSITIVE RATE ELEMENTS.**

15
16 **Q. HOW DID VZ-MA DETERMINE THE COSTS OF RIGHT TO USE**
17 **SOFTWARE?**

18 A. VZ-MA's right to use software is an allocation of an
19 annualized software expense for Verizon East based on

⁴³ This can be shown in the Line Termination output reports from SCIS that will always show excess call processing capacity costs assigned to every port because the port capacity of the switch module was reached before the usage capacities could be completely utilized. These excess capacity categories are known as 'Part C' of the Line termination costs.

⁴⁴ Note that the VZ-MA's analysis and AT&T/WorldCom's restatement, the trunk costs are initially and temporarily assigned to the non-usage costs in Verizon's WP Part C-2, Section 4, Page 1, in order to isolate the local switch usage costs to develop the switch MOU rate element. The trunk costs are subsequently isolated from the non-usage category and assigned

1 historical data for 1999 and 2000 plus forecasts for 2001
2 and 2002.

3 **Q. IS THE TOTAL RIGHT TO USE FORECASTED AMOUNT LEGITIMATE?**

4 A. We don't know and VZ-MA didn't provide any supporting
5 documentation for the high level estimates it used.⁴⁵

6 **Q. WHY DO YOU QUESTION THE VERIZON-EAST RIGHT TO USE FEE
7 AMOUNTS?**

8 A. Right to use fees can vary dramatically as can be seen in
9 VZ-MA's study in Part G-9, Workpaper labeled Software
10 Expenditures. There were expenditures of \$377,484,055 in
11 1999, dropping to \$179,189,049 in 2000, with levels
12 forecasted to drop slightly more in 2001 and 2002. VZ
13 included the 1999 levels in its levelization of the four
14 years of data, thereby severely inflating the annual
15 estimate of costs.⁴⁶ Without any explanation of the spike
16 seen in 1999, it should not be included.

17 **Q. SHOULD BA OR VZ-MA'S CURRENT RTU EXPENDITURES BE USED TO
18 DETERMINE FORWARD-LOOKING RTU FEES IN A TELRIC STUDY?**

19 A. No. VZ's embedded RTU expenditures can include software
20 purchases necessary to "catch up" older switches with

appropriately in the Digital Trunk Port development that is then used to
calculate the common trunk MOU cost.

⁴⁵ See Verizon's response to ATT 12-1, 12-2, 12-4,

⁴⁶ Note that VZ-MA went to great lengths to show that its cost study spanned
the timeframe from 2000-2003 (see Verizon's response to ATT 4-6), yet here
it uses suspect 1999 data.

1 current software programs throughout Verizon's
2 jurisdictions. In addition, a TELRIC study, as discussed
3 previously, and as recognized by VZ-MA's witness Dr.
4 Taylor, requires a completely new network to be built that
5 would eliminate the need to upgrade older generation
6 switches. A large spike could also be the result of a one-
7 time only atypical RTU purchase that simply shouldn't be
8 reflected in a forward-looking environment.

9 **Q. WHAT CORRECTIONS HAVE YOU MADE?**

10 A. We have made no corrections to the Right to Use fees
11 because the minimal amount of information provided by
12 Verizon does not allow us to make any in-depth review or
13 recommendations. If further information is provided
14 regarding these fees, AT&T/WorldCom may file Supplemental
15 Testimony.

16 **Q. HOW WERE THE UNSUBSTANTIATED RTU COSTS ALLOCATED TO UNE**
17 **RATES?**

18 A. VZ-MA has allocated the RTU costs to the minute of use UNE
19 rate element.

20 **Q. HOW DOES VERIZON INCUR RIGHT TO USE COSTS?**

21 A. Right to use fees are typically either paid on a per switch
22 basis or are paid contractually as part of a larger buy-
23 out. Buy-out contracts allow a telephone company to

1 purchase software for all (or sometimes a subset) of its
2 switches, rather than purchasing on a per switch basis.

3 **Q. ARE RIGHT TO USE FEES EVER PAID BASED ON MINUTES OR CALLS?**

4 A. I have never seen right to use fees charged on a minute or
5 call basis. RTU fees don't change regardless of how few or
6 how many minutes are on a switch. If the software costs
7 were to be substantiated, they should therefore be
8 allocated to the non-traffic sensitive switch port rates,
9 and not to the traffic sensitive minute of use rates.

10 **Q. WHY RECOVER RTU COSTS VIA THE PORTS?**

11 A. For the same reason that the "getting started" cost should
12 be recovered from ports described previously. Reaching
13 port capacity will trigger the purchase of a second switch.
14 Right to use costs are incurred primarily on a per switch
15 basis. Exhaustion of ports is the cost driver for the
16 purchase of an additional switch and the concomitant RTU
17 fees. Cost causation principles are best preserved by
18 allocating RTU fees to the ports in the same manner as the
19 "getting started" cost.

20 If for some reason the Department does not accept
21 assigning the RTU or the "getting started" cost of the
22 switch to the ports, then VZ-MA should be required to
23 allocate RTU costs to all minutes, including reciprocal
24 compensation, and not just to UNE minutes.

1 Q. WHAT ARE THE IMPACTS ON THE SWITCH UNE ELEMENTS WHEN THE
2 CORRECTION IS MADE TO ASSIGN THE USAGE SENSITIVE COSTS TO
3 THE USAGE SENSITIVE ELEMENTS?

4 A. The port costs increase 65% with a corresponding 65%
5 decrease in the usage minute of use elements.⁴⁷

6 VIII. SWITCH ENGINEERING AND INSTALLATION FACTORS ARE
7 OVERSTATED

8 Q. WHAT IS THE SWITCH EF&I FACTOR?

9 A. The engineering, furnished and installed ("EF&I") factor is
10 the loading factor used to add items such as vendor
11 engineering, VZ-MA engineering, vendor installation and VZ-
12 MA installation, and sales tax in order to convert the
13 material only cost to a fully installed cost.

14 Q. WHAT ARE OTHER TELEPHONE COMPANIES' SWITCH EF&I FACTORS?

15 A. Publicly available data from other telephone companies
16 indicate factors ranging from 8-12%, not including vendor
17 engineering and installation.

18 Q. HOW MUCH IS VENDOR ENGINEERING AND INSTALLATION?

19 A. SCIS can compute this portion of the engineering and
20 installation as it calculates both material only or vendor

⁴⁷ See electronic workpapers filed herewith as Exhibit CP-7, filename "Reallocation recalculated MA-01-20 Switching Monthly.xls", Reallocation recalculated MA-01-20 Switching MOU.xls" and "Reallocation recalculated MA-01-20 RecipComp.xls."

1 engineering, furnished and installed (EF&I) costs. SCIS
2 computes 14% for vendor engineering and installation.⁴⁸

3 **Q. IS VZ-MA'S SWITCH EF&I FACTOR COMPARABLE TO OTHER TELEPHONE**
4 **COMPANIES?**

5 A. No, VZ-MA's factor is clearly too high. VZ-MA's factor is
6 40.27%. For other comparable ILECs, vendor engineering and
7 installation of 14% plus 5% for sales tax plus 8% local
8 telephone company engineering and installation results in a
9 total EF&I factor of 27%, compared to VA-MA's factor of
10 more than 40%.

11 **Q. DOES VZ-MA PROVIDE ANY REASONS WHY ITS ENGINEERING AND**
12 **INSTALLATION COSTS MAY BE HIGHER THAN OTHER COMPANIES?**

13 A. Yes. VZ-MA admits that it always performs its own
14 engineering and installation and does not put these work
15 efforts out to competitive bid.⁴⁹ Marketplace competitive
16 pressures that encourage efficiencies are therefore absent.

17 **Q. WHY SHOULD THIS COMMISSION RELY UPON COMPARISONS WITH OTHER**
18 **COMPANIES AS IT CONSIDERS VZ-MA'S CLAIMED COSTS?**

19 A. Despite repeated attempts to have VZ-MA provide
20 documentation of the activities and associated costs for
21 its engineering and installation, it has not provided any

⁴⁸ See electronic workpapers filed herewith as Exhibit CP-7, filename "EF&I Factor Development.xls".

⁴⁹ See Verizon's response to ATT 3-4.

1 support other than embedded high-level accounting numbers
2 that provide no detail about what types of functions,
3 activities and costs are included in its factor.⁵⁰

4 Without enough information to even analyze whether a
5 very large number on a piece of paper is reasonable, the
6 only choice is to compare the numbers to other publicly
7 available data. It is reasonable that one large telephone
8 company's engineering and installation would be similar to
9 other large telephone companies. It is also reasonable
10 that a large telephone company's engineering and
11 installation costs would be much less than those of a small
12 rural telephone company.⁵¹

13 **Q. WHAT DO YOU PROPOSE AS A REASONABLE FORWARD-LOOKING**
14 **EFFICIENT EF&I FACTOR?**

15 A. In a forward-looking cost study, efficient installation
16 practices should be reflected, even if the ILEC has a
17 history of inflated costs reflecting inefficient practices.
18 AT&T/WorldCom therefore propose a 30% factor as a

⁵⁰ See Verizon's responses to ATT-3-3, 4-16, 4-21, 4-22, 15-5. VZ-MA responded on July 13 to a follow-up question (ATT 22-2) asking for details of the data that make up the EF&I costs, but the data is not helpful as it does not provide any information about what constitutes the In-Place cost compared to the material cost.

⁵¹ Sprint agreed that an 8% local telephone company engineering and installation factor was reasonable for rural telephone companies in the FCC's USF proceeding. Small rural companies, with only one or two switches, cannot achieve the same scale and scope associated with engineering and installing large networks owned by the large telephone companies with hundreds and even thousands of switches.

conservative estimate of a forward-looking EF&I factor,
compared to the calculated 27% factor described above.⁵²

**IX. RECIPROCAL COMPENSATION RATES SHOULD BE CALCULATED USING
UNE SWITCH RATES**

**Q. HOW HAS VZ-MA DEVELOPED THE SWITCH PORTION OF THE DERIVED
RATES?**

Despite VZ-MA's admission that the switch processing of UNE
traffic and reciprocal compensation traffic is the same⁵³,
VZ-MA arbitrarily chose not to include the substantial
"getting started" costs and right to use fees in the
reciprocal compensation rates, even though it included
these same costs in its UNE usage rates.

A switch is engineered and purchased to handle all of
the traffic in total, without regard to individual users or
classes of service. The equipment used for a minute of
traffic is essentially the same, irrespective of customer
or service.⁵⁴

⁵² The impact of the proposed 30% EF&I factor results in a 7% decline in port elements and a 14% decline in usage elements. See summary page of the following workbooks in the electronic workpapers filed herewith as Exhibit CP-7: "EF&I Recalculated MA-01-20 Switching Elements Monthly.xls", "EF&I Recalculated MA-01-20 Switching Elements MOU.xls" and "EF&I Recalculated MA-01-20 RecipComp.xls".

⁵³ See Verizon's response to ATT 12-10 and 12-11

⁵⁴ See Verizon's response to ATT 12-10 and 12-11.

1 Q. HOW DOES VZ-MA EXPLAIN THE CHOICE TO INCLUDE THESE COSTS IN
2 UNE SWITCH USAGE COSTS AND NOT RECIPROCAL COMPENSATION
3 COSTS?

4 A. VZ-MA claims it is including only incremental costs of the
5 additional traffic associated with terminating other
6 carriers' traffic. VZ-MA's story is that since reciprocal
7 compensation traffic won't cause a burden to the processing
8 capacity nor cause any increase to right to use fees, both
9 "getting started" costs and right to use fees should be
10 excluded.

11 Q. IS VZ-MA'S EXPLANATION REASONABLE?

12 A. No. It is an obvious attempt to maximize its UNE revenues
13 and minimize the costs of reciprocal compensation that VZ-
14 MA pays. The exact same assumptions could be said of UNE
15 traffic as well.

16 Q. ARE THERE MODIFICATIONS YOU ARE RECOMMENDING TO VZ-MA'S
17 STUDY THAT WILL VIRTUALLY ELIMINATE THIS ENTIRE PROBLEM?

18 A. As discussed above, the "getting started" cost of a switch
19 (or its right to use fee, as discussed above) should not be
20 included in the usage UNE elements in the first place
21 (these costs properly belong in the port elements). When
22 this correction is made, the argument about allocations of
23 "getting started" costs and right to use fees to UNES

1 versus reciprocal compensation is moot because the costs
2 are fully assigned to the ports where they belong.

3 If, however, the Department does not accept
4 AT&T/WorldCom's proposal to reallocate the "getting
5 started" cost and the RTU fees to the ports, then these
6 costs must be fairly apportioned to all traffic, including
7 reciprocal compensation, and not just to UNE switch usage
8 rates.

9 **X. SUMMARY AND CONCLUSION**

10 **Q. PLEASE SUMMARIZE YOUR TESTIMONY**

11 A. After a thorough review of VZ-MA's switch cost study, it is
12 clear that fundamental flaws exist that create severe
13 overstatements in switch UNE elements. Before correcting
14 these flaws, VZ-MA's study needed to be recalculated to
15 address obvious discrepancies between the electronic SCIS
16 results and VZ-MA's cost study. The flaws include using an
17 incorrect growth only switch price for a long-run study, a
18 fatally flawed methodology for developing the discount
19 inputs, understatement of trunk utilization inputs,
20 assuming a mix of integrated digital loop carrier lines and
21 copper analog that is not forward-looking, right to use
22 fees and feature port additives with questionable inputs
23 (for which VZ-MA has been unable to sustain its burden of

1 proof), an engineering and installation factor that is too
2 high and a mis-allocation of non-traffic sensitive port-
3 related costs to the local switch usage rate element.

4 The restated rates in Exhibit CP-1 incorporate all the
5 corrections described in detail in this testimony as well
6 as the various factor corrections proposed by Mr.
7 Baranowski.⁵⁵

8 **Q. PLEASE STATE YOUR CONCLUSIONS.**

9 VZ-MA's cost study is fatally flawed for all the reasons
10 above and should be rejected. If the Department does not
11 accept the HAI model and its results as a foundation for
12 switch UNE costs, then VZ-MA's study must be corrected as
13 described here and the results presented in Exhibit CP-1
14 should be adopted.

⁵⁵ To review the corrections in this testimony without Mr. Baranowski's factor changes, please see the electronic workpapers filed with this rebuttal testimony as Exhibit CP-7, filename: "All Switch Recalculated MA-01-20 Switching Elements Monthly.xls", "All Switch Recalculated MA-01-20 Switching Elements MOU.xls" and "All Switch Recalculated MA-01-20 RecipComp.xls".